THE VETERINARY RECORD

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VETERINARY INSPECTION AT SINGAPORE.

On February 19th we printed on this page an extract from *The Siam Weekly Mail* which stated that "the veterinary surgeon at Singapore is quite subordinate to the Medical Officer" . . . . "that the rinderpest was actually in the Colony before the "vet." knew it" . . . . "that he only discovered it on the information of the medical officer" and "that it was not yet crushed out but allowed to spread to Malacca." In this number will be found a letter from the Government Veterinary Surgeon at Singapore, Mr. P. Scott Falshaw, M.R.C.V.S., showing that every one of the statements in *The Siam Weekly Mail* was devoid of truth. We take the earliest opportunity of expressing our regret to Mr. Falshaw for having given publicity to such a series of false statements, and thank him for the two annual reports, which show that he very promptly stamped out a disease which obtained ingress from no want of action on his part.

COMPENSATION FOR TUBERCULOSIS.

We promised, last week, to publish the recommendations of the Commission in full, and proposed to offer some comments thereon. Space has prevented this, and we reserve comment until our readers have before them the recommendations.

On one point the Commission did not agree, and three out of the seven members sign a memorandum expressing their dissent from the majority. The main report says "a considerable number of witnesses, especially those representing butchers' associations, have urged that compensation should be made to butchers for carcases seized by the Local Authorities on account of tuberculosis. . . . Having given this question our careful consideration we have arrived at the conclusion that we cannot on the merits of the case recommend compensation. The risk involved in the purchase of animals for slaughter by reason of tuberculosis is one that is fully recognised in the trade, and as admitted by some witnesses it cannot fail to affect the price." The argument here is that the risk is one which can be avoided or that it is considered in the price given for an animal. We think no one acquainted with the facts will argue that butchers give less money for a good healthy looking animal because it may possibly be tuberculous. The minority report says—"It has been shown to our satisfaction that it is impossible to detect the presence of limited or localised tuberculosis in the living animal from its outward appearance. Even when generalised – that is when it exists to an extent which may justify the condemnation of the carcase after slaughter—the animal may betray no outward sign of disease."

They then relate a case, seen by the Commissioners who visited Antwerp, of a remarkably fine and apparently healthy cow which after slaughter was condemned; and add—"Under the Belgian law the owner of this animal would receive half its value in compensation." Even the tuberculin test is incapable of being applied in market, and when applicable is of no value in ascertaining the *extent* to which a live animal is tuberculous."

The majority report argues that the risk to human beings from tuberculous meat has been greatly exaggerated, that excessive stringency had been exercised in many cases when carcases had been seized, and that very few cases of substantial loss occurred to butchers by seizure of diseased carcases. They recognised that some risk existed, and were of opinion that the best way for the trade to meet it was by some system of mutual insurance.

The minority point out that—"The presence of generalised disease may be regarded as an ordinary trade risk, but there is this important consideration to be kept in view. If any party to the transaction can be held responsible for the presence of the disease, it is the farmer or grazier who exposes the animal for sale. But there is no power to seize the animal during life, even if it exhibits clinical symptoms of advanced tuberculosis. It is not till the animal has been sold to a butcher, perhaps in perfectly good faith on either side, killed and exposed as meat that an inspector may seize it. Then the loss falls entirely on the butcher."

The minority recommend payment of full compensation—half from the rates and half from the Imperial funds—for confiscated carcases, provided—

(*a*) That the animal when alive exhibited no signs of disease.

(*b*) That compensation be limited to carcases for which not less than a certain sum was paid and not in excess of a certain maximum.

(*c*) That no sum be paid except on the order of the magistrate ordering confiscation of a carcase.

(*d*) That the compensation be paid by the Council of the administrative county, which shall be entitled to repayment of one half the amount from the Imperial funds.

Even the minority seem afraid of compensation. They say—"We are of opinion that compensation should only be allowed for a limited period, dating from the time when measures are adopted, as we hope they will be adopted, for the elimination of tuberculosis from our herds . . . . . Scientific knowledge of the character of the disease is so recent that the ordinary agriculturist cannot be blamed for its prevalence in his stock. But as soon as the proper treatment and precautions have been formulated it will become his duty as well as his interest to put himself beyond risk of loss by confiscation. The butcher will then be able to protect himself by purchasing those animals only which have stood the recognised test." We confess our inability to follow this reasoning.

CASES AND ARTICLES.

FRACTURE OF FIRST RIB.

By Alfred Peele, F.R.C.V.S., West Hartlepool.

The following brief account of a case where I found fractured first rib on post-mortem examination may be interesting, I have the fractured rib and I enclose a photograph of it.

On November 4th, 1895, as I was driving out of the town I was stopped by a man with a mare in a laden rolley. The mare had fallen very lame on the near fore leg. She was standing with weight on the leg, on lifting the foot she showed much pain, and causing her to move I saw she would have to be loosed out at once, so I told the driver to put her into a stable close at hand and promised to call on my way back. I found her on my return in a loose box, with near fore flexed, shoulder and elbow dropped, when made to move she kept the leg flexed and appeared as if she would come to the ground, she exhibited pain when the leg was moved and on pressure over the shoulder. Mare was placed in slings and kept there until December 10th without showing any improvement, so was shot. The post-mortem examination revealed a fracture of the left first rib about an inch and a half from the head, the fractured ends being partly surrounded by a tough fibrous tissue; the surrounding muscles were much discoloured. I could obtain no history of accident, the mare worked up to late on Saturday night when the driver said she was stiff, also thought her stiff on Sunday in the stable. On Monday she started slightly lame, he called at a place about a mile out of the town where he had some turning to do, and soon afterwards I saw the mare on the road as stated.

PARALYSIS OF THE RADIAL NERVE, "DROPPED ELBOW," Etc.

By E. Wallis Hoare, F.R.C.V.S.

The above is, properly speaking, only a pathological condition depending on different causes, but the clinical phenomena do not enable us to arrive at a correct conclusion as to the lesion that is present. The attitude that is recognised as characteristic of this form of lameness naturally leads us to the region of the shoulder and elbow for its location, and practitioners who have had experience of this form of lameness will admit that, in consequence of variation in severity and duration of the symptoms presented in the termination of the cases, and other surrounding circumstances, it would not be rational to ascribe the condition to any one constant cause.

The fact that fracture of the first rib has been found in post-mortem examinations of these cases is of great practical value, but we have evidence that such symptoms may exist independent of such fracture; while the clinical history of many cases would lead us to believe, in consequence of the quick recovery, that such a lesion could not have been present.

It is my intention to describe a few cases in order to show how difficult it is to arrive at a diagnosis and prognosis of this form of lameness.

(*I*). An aged troop mare, the property of the Royal Irish Constabulary, was found to be excessively lame in the near fore leg, when the attendant brought her out of the stall in the morning. No cause could be assigned. The animal was brought to the infirmary for treatment, a short distance, but with great difficulty as no weight could be placed on the leg.

On examination the characteristic attitude of the affection we are considering was apparent, and it was found impossible to force the animal to bear any weight on the leg. Hot applications and rest were prescribed. Next morning the animal was able to bear weight on the leg and walk easily, while on the third morning she trotted only perceptibly lame, and after a few days was perfectly well.

(*II*). An aged cart horse was found suddenly lame in the stable. On examination the same attitude was apparent as in the last case, but there appeared more disturbance of the general system, with accelerated respirations, etc., and almost inability to move. I gave a diagnosis of fracture of the first rib, but was surprised to find that by the fourth day the animal was going perfectly sound.

(*III*). An aged harness mare was sent in for the removal of a large capped elbow. She was carefully cast; the operation was tedious, as the tumour extended very deep, the animal got up after the operation with the near fore leg hanging in a helpless manner, unable to bear any weight upon it, and the toe of the foot just touching the ground, the "dropped appearance" of the elbow being very characteristic.

She was with difficulty removed to a stall and tied up, and fomentations were applied. Next morning she could bear weight on the leg, and with the exception of an occasional tremor of the muscles of the

leg, she appeared all right and gave no further trouble. I may remark that this animal was cast on the left side.

(*IV*). A well bred mare, four years old, used for harness but at present in training for a local race. While the attendant was cleaning the stall she made a rush through a narrow doorway, bruising the near side severely and also the near hip. She became suddenly lame in the near fore leg and was with difficulty brought back to her stall.

On my attendance I found her sweating profusely and in a condition of great excitement. The near fore leg was almost helpless, the elbow was "dropped," the leg was flexed and advanced, the toe just touching the ground. No weight could be borne by this leg. The animal showed marked tenderness over the region of the ribs and could not be moved in the stall. There was a marked "pleuritic" ridge, and abdominal respiration.

Fomentations were applied, and a few doses of spts. aeth. nit. administered. Next morning the animal was improved but still assumed the characteristic attitude. Fomentations were continued and a stimulating liniment applied to the region of the elbow.

The patient improved daily, but it was over a month before she was fit for exercise, and ultimately she went sound.

This was evidently a case of fracture of the first rib, but as there was no opportunity for an autopsy one could not be positive in the diagnosis.

About the same time as this case occurred I met another in a van horse with almost identical symptoms, but there was no history of any injury, the animal being found in the morning very lame in the stall. In this instance there was marked atrophy of the extensor muscles of the arm, which was apparent after a short period. The owner did not wish the trouble and expense of treatment and ordered the animal to grass, he had to be sent out in a float, so severe was the lameness, but after a long period he became sufficient sound for van work. The extensor muscles, however, continued in a wasted condition.

After a consideration of a series of cases such as the above we are justified in enquiring whether the condition known as "dropped elbow" always depends on a constant lesion. No doubt we may be told that in the absence of autopsies such evidence is of no value, still we must admit that a large proportion of cases of lameness are diagnosed and treated in the same state of uncertainty; the animals recover, but who can decide whether the diagnosis was correct after all.

To sum up, we may say that cases presenting the symptoms of "dropped elbow" may depend on fracture of the first rib, or on paralysis of the radial nerve from some unknown cause, or on some lesion of the triceps extensor brachii muscle.

An important point to note is that in some cases of lameness due to ringbone, symptoms of "dropped elbow" may be present. I have seen two cases in which the seat of the lameness was diagnosed as the region of the elbow, but ultimately a low ringbone developed.

In my last case all the characteristic symptoms of "dropped elbow" were apparent, the lameness was of recent origin, there was atrophy of the extensor muscles of the forearm; a blister was applied but the animal got worse, and after being two months on grass he was brought in more lame than ever. Examination showed that a low ringbone was forming. There were no traces of this at my first examination; so that it may be of importance in cases showing these symptoms to be extra careful in examining the region of the coronet. Of course if no enlargement can be felt, an error is excusable, if we attribute the lameness to the region of the elbow, and ringbone ultimately developes.

ABSTRACTS FROM FOREIGN JOURNALS.

REPOSITION OF PROLAPSE OF THE UTERUS WITHOUT PREVIOUS REMOVAL OF THE AFTERBIRTH.—By Strebel, (*Schw. Arch. Bd.*)

Textbooks of all kinds recommend removal of the adherent afterbirth before reposition. There are good reasons for this, but also adverse ones. It is assumed that a retained and decomposing afterbirth brings about dangerous subsequent complications through absorption of deleterious matter through the injured mucous membrane of the womb. Strebel objects on the whole to manual removal of the afterbirth, but accomplishes the same object by rational local antiseptic treatment.

Manual separation is, as a rule, not accomplished without injury, the arm of the operator may be too short to reach the horns of the uterus, in which case success is only partial, and then we find septic matter forms despite removal. Strebel has during a period of 25 years only removed the afterbirth in mares. In cattle he accomplishes the same object by means of copious antiseptic injections.

Strebel now questions whether the afterbirth may not be left in mares, and mentions three cases of this having occurred. In all three cases the owners had returned the prolapsed uterus with the afterbirth adherent. Bad results did not occur, although the envelopes only came away after several days and reposition had been by no means carefully accomplished. These cases are not sufficient to overthrow precedent, but they furnish ground for doubting whether the act of removing the cleansing before reposition is so essential.

The earlier the prolapsed uterus can be returned, the more easily the operation is accomplished. Shortly after prolapse it is swollen but little. The easier reposition the less the possibility of injuries. Again the placental membranes are often very firmly adherent in the cow and can be separated only with much force, and thus primary injuries are caused. The separation of the afterbirth often causes long delay in accomplishing reposition which consequently become more difficult. The adherent membranes, besides, hinder direct injury to the uterine mucous membrane, and this protection is in some measure very valuable. Also the organ is considerably more slippery with the afterbirth adherent, and conse-

quently more easily returned. The slipperiness can be increased by washing with fresh milk. Following this with lukewarm antiseptic injections furthers separation of the fœtal placenta, and besides prevents infection.

G. M.

ELECTION ADDRESS.

To the Members of
The Royal College of Veterinary Surgeons.

GENTLEMEN,

I beg to offer myself as a candidate for election to the Council of the Royal College of Veterinary Surgeons.

I am in favour of progress, and consider that the more we advance the higher public opinion will be of us, but this advance must be practical as well as theoretical.

I am of opinion that the profession will not receive the official recognition it is entitled to until a member of it is in the House of Commons. If I have the honour to be elected, I hope to be a working member of Council and to devote my endeavours to the general welfare of the profession.

JOSHUA A. NUNN, F.R.C.V.S., C.I.E., D.S.O.
Vet.-Major, Army Veterinary Department.
Junior United Service Club.
Charles Street, W.

VETERINARY SOCIETIES.

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

The fifteenth annual meeting was held at the New London Hotel, Exeter, on Thursday afternoon, March 24th. The President (Mr. W. Penhale, Holsworthy) occupied the chair; and there were also present Professor McFadyean, M.B., C.M., B. Sc., (London), Messrs. J. P. Heath, W. Penhale (Barnstaple) Vice-presidents: Mr. W. B. Nelder, Exeter, Treasurer; Mr. J. Dunstan, St. St. Mellion, Secretary; and Messrs. T. E. Baker, Crewkerne; W. H. Bloye, Plymouth; E. W. Bovett, Bridgwater; H. P. Chase, Tiverton; F. P. Collings, Plymouth; H. W. Davie, Crediton; G. H. Elder, Taunton; G H. Gibbings, Tavistock; C. H. Golledge, Sherborne; F. T. Harvey, St. Columb; C. Howard, Exmouth; A. H. Oliver, Devonport; R. E. L. Penhale, Haltherleigh; W. Roach, Exeter; E. J. Thorburn, Okehampton; R. J. Collings, F. C. Hobbs, Exeter; and Watkins.

Letters of apology for non-attendance were received from Professors Penberthy, Macqueen, Hobday, Shave, Pritchard, and Williams; Messrs. E. J. Bath, F. G. Ashley, O. G. Barrow, Hy. Olver, T. Olver, W. Ascott, A. J. Down.

After the minutes of the last meeting had been read and adopted,

The HON. TREASURER (Mr. W. B. Nelder) said his report was not as satisfactory as he could have wished, although it was certainly better than last year's. But a great number of members had not paid their subscriptions for years—in fact, he was almost ashamed to say how many—and he thought the time was come when something should be done in the matter. (Hear, hear). The subject had been shelved too often. There was a balance at bank amounting to £62 4 3. The expenses had been £7 7s.; subscriptions had amounted to £11 0s. 6d. He suggested that those members who were in arrear should be sent to, and if there was not a favourable reply, they should be asked to resign.

In answer to Mr. Penhale, Mr. NELDER said some of the members were as much as seven years in arrear.

The HON. SECRETARY said that most of the Associations struck off members who had ceased to subscribe for four years.

Mr. NELDER: Our members who are in arrear never attend the mettings, nor pay their subscriptions.

Mr. PENHALE (Barnstaple) said that if a member ceased for three years to subscribe, his membership should cease.

Mr. NELDER moved that gentlemen whose subscriptions were in arrear should should be sent notices reminding them of the amount due.

Mr. ROACH seconded the motion which was agreed to.

Mr. HEATH said as the Association was accumulating money, he thought the next meeting should be asked to consider whether the annual subscription should be lowered. He did not know what they wanted to do with the money unless they joined the National Veterinary Benevolent and Mutual Defence Fund. Otherwise it seemed to him that they were asking for a bigger subscription than was required to carry on the work.

Mr. CHASE: If they won't pay half-a-guinea they won't pay five shillings.

Mr. PENHALE (Barnstaple): Let it go on until we have a Reserve Fund of £100.

Mr. HEATH said he was only actuated by a desire to ventilate the subject.

Mr. CHASE: We might want to defend some of our members who may get into a bother. We might want to vote £20 to such a purpose.

The HON. SEC.: In the event of the amalgamation of the local associations with the National, which I hope soon to see, we shall want every penny of our half-guinea annual subscriptions.

The subject then dropped.

Mr. Bath (Bristol) wrote stating that he should be pleased to subscribe to the Association if elected a member.

Mr. PENHALE (Barnstaple) proposed, and Mr. Nelder seconded, that Mr. Bath be elected a member of the Association. Carried unanimously.

ELECTION OF OFFICERS.

Mr. CHASE said that they could do no less than offer the presidental chair for the ensuing year to one who had done more for this Association than any other individual member. He referred to Mr. W. B. Nelder. (Hear, hear). Seeing the work he had done for the Association for some years, and how he had been the life and soul of the thing when everybody else was apathetic, they would, no doubt, be all pleased in electing him as President. (Applause).

Mr. J. P. HEATH seconded the motion.

Mr. NELDER said he was much obliged to Mr. Chase and Mr. Heath, but he could not see his way clear to accept the honour. There were many senior members who had a better claim. He begged to propose Mr. Harvey, of St. Columb.

Mr. HARVEY said he hoped Mr. Nelder would himself take the office.

The CHAIRMAN said whatever honour attached to the presidential chair belonged to the man who did the most work for the Association. That man was Mr. Nelder.

Mr. NELDER, however, positively declined.

Mr. BLOYE said nobody would more strongly contend than he would that Mr. Nelder was deserving of honour

in connexion with that Association. (Hear, hear). But few members had greater claim to the presidential chair than Mr. Harvey. (Hear, hear). He had more than once filled the breach when, at their meetings, they had required someone to read a paper; and no man was better qualified than he to fill the position. He was a Cornishman, and Cornwall had been somewhat neglected. Now the Association had a secretary from that county, and it would help them on considerably if they also had a President. He had great pleasure in seconding Mr. Harvey's nomination.

Mr. HARVEY was then unanimously elected.

The Vice-presidents were elected as follows: Messrs. J. P. Heath, C. Parsons, W. Penhale (Barnstaple), T. Olver, G. H. Elder, W. H. Bloye, C. H. Golledge, and W. Penhale (Holsworthy), the last named taking the place of Mr. H. W. Thomas.

Mr. G. H. GIBBINGS (Tavistock), in moving the re-election of the Hon. Sec., said that Mr. Dunstan had fulfilled the duties in an able manner, and he had been mainly instrumental in getting such a large attendance at the meeting that day. (App.)

Mr. HARVEY, in seconding, said Mr. Dunstan had already proved himself to be an excellent secretary. (Hear, hear).

On the motion of Mr. Harvey, seconded by Mr. Nelder, it was decided to hold the next meeting at Plymouth.

In answer to a question the SECRETARY said that eight members attended the last meeting at Plymouth.

Mr. PENHALE (Barnstaple) said the Association seemed to be better accommodated in Exeter, the centre of Devon, than it did on the borders of Cornwall. He hoped they would be more successful at Plymouth next time. (Hear, hear, and laughter).

The CHAIRMAN said that no doubt an Exeter meeting secured the best attendance, but seeing that Mr. Harvey was President next year they could not do better than go half way to meet him. (Hear, hear.)

Messrs. Bloye and Collings were appointed dinner stewards for the Plymouth meeting.

The HON. SEC. announced that he had received a request from the Royal Agricultural Benevolent Institution requesting that the Association should subscribe to their funds. He had ascertained from the veterinary journals that the Eastern Counties Association subscribed £2 2s. annually, and that was the only Society that he could find mentioned It was an institution for the benefit of destitute farmers and their families.

Mr. PENHALE (Barnstaple) said as the Association had many calls from their professional brethren, he would propose that the communication lie on the table.

Mr. ROACH seconded the motion, which was carried unanimously.

THE VICTORIA VETERINARY BENEVOLENT FUND.

Mr. PENHALE (Barnstaple) said he believed this Jubilee Fund was started for the help of those veterinary surgeons and their families who were sadly in need of funds. It sometimes happened that a professional brother was laid up by sickness or died, his wife and family being left helpless to do battle with the world. There was no necessity to dilate on the struggles they might be called upon to endure, but they might be mitigated by a little timely help from the members of the profession as a body. The Fund was a capital one, although he believed there was a similar one in the North of England. If the Association gave about £5 5s. to the Victoria Fund he thought it would meet the case, and he would propose that that sum be voted. (Applause).

Mr. ELDER, in seconding, said he did not think the Victoria Fund was antagonistic to the existing Society.

Professor MCFADYEAN, in response to a request from the Chairman, said he should have great pleasure in explaining what the objects of the Victoria Benevolent Fund were. He ought, perhaps, to take the opportunity of correcting what appeared to be a widespread misapprehension, and that was that this new Society was in conflict with the one that had been in existence for some years, and was known as the Benevolent and Mutual Defence Society, sometimes called the Manchester Society. He was not himself a member of that Society, but he thought that it was one that could give admirable reasons for its existence. He thought no one would deny that the profession ought to have a defence society. Veterinary surgeons needed to have a mutual benevolent society. The new society had quite other objects. It was purely a benevolent society. It was not intended to help those only who were subscribers to the Fund. It was simply intended to give succour to those members of the profession, or to the members of their families who were absolutely helpless, and were urgently standing in need of help. There was no one who would say that it was not desirable for the profession in the latter part of the 19th century to have such a body. He really could not say as he should like how strongly he felt that this new society was deserving of help and support; and he was pleased to find this Association looked upon it in that light. (Applause).

A donation of £5 5s. was then voted.

The CHAIRMNN said he had received a letter from the Mutual Benevolent Society (the Manchester one) asking him to bring its claims before the Association.

On the motion of Mr. Roach the communication was laid on the table.

The CHAIRMAN said the Secretary had framed a draft of the proposed new rules for the Association. The old rules which were drawn up on the formation of the Association fifteen years ago, needed revision. But there was hardly time to go into the matter then, and the Secretary himself suggested that a sub-committee should be appointed to consider the suggested alterations.

The HON. SEC. said he had procured copies of the rules of the chief sister associations, and from them with the aid of Mr. Bloye and Mr. Penhale he had drawn up the proposed new set.

It was then decided that a rough draught of the new rules be printed and circulated among the members, so that all members might be able to give notice of any suggested alterations before the next meeting.

THE NATIONAL MEETING, 1899.

Mr. BLOYE said he believed the members of the Society would be glad to know that the National Veterinary Association was anxious to come into Devonshire for its meeting in 1899. The matter was mentioned to him at the last meeting. Some of the responsible officials thought, and he thought as well, that not only would it be a good thing for the National, but it would be a good thing also for the Association and members of the profession in this neighbourhood. (Hear, hear.) At the forthcoming meeting of the National Society part of the business was the selection of the town they must visit in the following year. He now simply suggested that the Society be invited to visit Devonshire in 1899 and that a committee be appointed to go into the matter. It would probably mean a guarantee fund, but that was a matter which might easily be overcome.

The CHAIRMAN: Have you any idea of the amount?

Mr. BLOYE: I have not.

Mr. PENHALE (Barnstaple): Can you say approximately?

Mr. BLOYE said much of the expense of previous years in connexion with the National meeting had been incurred in consequence of the entertainments which had been given by the receiving society. It appeared, however, from this year's contemplated proceeding that the entertainment was to be dispensed with, and that work rather than play was to be the chief consideration. In Devonshire there was plenty to attract visitors; and he had no doubt that the county could call together a

large number of members without providing an entertainment. But this, of course, would be a matter for after consideration. The visit would entail a certain amount of work on the local members, but he did not think the expense was to be feared at all.

Mr. PENHALE (Barnstaple) moved that a committee, consisting of Messrs. Bloye, Elder, and Heath be appointed to consider the subject.

Mr. NELDER seconded the motion, which was carried with the additions of Mr. Penhale, the hon. treasurer and hon. sec. to the committee.

ANTHRAX.

By Professor McFADYEAN, M.B., C.M., B.Sc.

Prof. J. McFADYEAN next read a most able and valuable paper on anthrax, dividing the subject under several heads and dealing separately and explicitly with each one. The paper is printed in full in *The Journal of Comparative Pathology and Therapeutics* for March.

He first laid great stress on the necessity of using the word anthrax in connection with the disease caused by the bacillus anthracis only, and considered it advisable that the word anthracoid should be dropped altogether, it being now loosely applied to diseases which are etiologically quite distinct, and it conveyed no more meaning than the words tuberculoid or glanderoid would under like circumstances.

The anthrax bacillus was first discovered by Rayer and Davaine in 1849, but it was not until 1876 when Koch discovered the phenomenon of sporulation of the rods, and demonstrated the infectivity of artificial cultures that the final proof that the bacilli were the cause of the disease was furnished. The bacilli in the blood of an animal recently dead occur in the form of cylindrical straight, or slightly curved motionless rods about 1·5 micro-millimetre in breath, and varying in length from 5-20 m.m. These rods when unstained appear structureless, but when they are appropriately stained each rod is found to be made up of from two to ten segments, which are the true bacterial cells. The segments were held together by a common envelope and united end to end by thin discs.

He next dealt at length with the staining of the bacilli, explaining the value of the different stains in enabling one to distinguish between anthrax bacilli and other bacilli which in the unstained blood, so closely resemble each other as to be undistinguishable.

The process of sporulation is one of very great importance, as anthrax spores offer much greater resistance than the vegetative elements or bacilli to such agents as heat, sunlight, and chemical disinfectants.

Sporulationcan cannot take place without full exposure of the anthrax rods to the air or oxygen, and only between the temperature of 64° and 107° F. This explains why sporulation never takes place during life, or in the dead body whilst it remains intact. The temperature at which sporulation is most rapidly effected is 90° F., 100° F. At 65-70° F. it requires about a week. In the dried state and protected from sunlight anthrax spores retain their vitality and power of germination for an indefinite period, but as soon as they find themselves in suitable conditions of moisture and temperature, they germinate and produce vegetative elements or bacilli.

The anthrax bacillus is a strict aerobe, and the limits of temperature within which it will grow are 60° F. and 111° In the complete absence of oxygen no growth can take place, therefore as soon as the death of an affected animal takes place, the growth and multiplication of anthrax bacilli in the blood and tissues of the body ceases. In considering the question of resistance of the virus, he stated that sunlight is fatal to the bacilli in blood exposed to the air in less than 24 hours, but, in the dry state, spores may resist exposure to sunlight for a month or more.

The bacilli in fresh anthrax blood are killed by a few minutes exposure to a temperature of 60° C., a moist heat of 100° C. is fatal within five minutes to spores, but they may resist a temperature of 95 C. for ten minutes.

To instantly destroy spores in the dry state a temperature of 160° C. is required. Bacilli in blood are quickly destroyed by exposure to 2½ per cent. solution of carbolic acid or chloride of lime in water, or by ·2 per cent. aqueous solution of mercuric chloride. On the other hand spores are not with certainty destroyed by a week's exposure to a 5 per cent. solution of carbolic acid in water, but ½ per cent. solution of mercuric chloride is fatal to them in a few minutes when contact can be assured.

He then went on to speak of the attenuation of virulence and of the preparation of vaccine, and in speaking of the distribution of the bacillus within the body, stated that they were always to be found in the blood vessels, even in the minutest capillaries, therefore in making a post-mortem, microscopical diagnosis, an ear or a foot were the best parts to take the blood from, especially if the animal had been dead some time, as there was less likelihood of there being any putrefactive organisms present than if the blood were taken from any of the internal organs. He stated that there can be little doubt that in perfectly natural circumstances the anthrax bacillus frequently finds all the conditions necessary for its multiplication external to the animal body, but at the same time it is probable that at least in temperate climates, such as ours, it depends for its continued existence mainly on its power of propagating in the body. There are good grounds for believing that during the greater part of the year in this country surface contamination of the soil, with blood, urine or fæces of an anthrax animal is only temporary. If, however, the temperature is over 70° F. the result may be very different, for the bacilli may then form spores.

Summing up what he had said under the heading, "Habit of Life of the bacillus," he said. It appears highly probably that those parts of the earth's surface at which anthrax germs at present exist, owe their contamination to the excrement, urine or other discharges of animals suffering from anthrax, or to the blood shed on the surface of the soil during post-mortem examination. The method of infection may be by inhalation, inoculation or ingestion, the latter being far and away the most common. All the domestic animals in this country are susceptible.

The symptoms: Temperature 2°-4° F. above normal, with the common accompanying signs of fever, and in fatal cases great prostration, profound dullness of expression, rapid heart action, and feeble arterial pulsation, occasionally more or less blood is passed with the fæces.

Death usually takes place quietly without convulsions. The above are the symptoms peculiar to the ox, and those of the sheep are very similar. In the horse there are frequently indications of abdominal pain, and there is often swelling of the throat. In the pig swelling of the throat is a very characteristic symptom.

He then went on to describe the post-mortem lesions which are too well known to need description. Speaking of diagnosis, he said the veterinary surgeon usually had a dead carcase at his disposal, and the safest method of examination was by means of the microscope. Treatment was of no avail.

Prevention.—The measures that may be taken with the object of prevention comprise: 1, preventive inoculation; 2, those precautions against infection which are suggested by a knowledge of the methods by which the disease is generally contracted and spread.

In considering what prophylactic means may be taken when an outbreak of anthrax occurs, it is necessary to remember that every animal affected with the disease is a source of soil contamination while it is still alive, by

reason of the bacilli voided in its urine or excrement, and that it may be made a still more serious source of contamination after death, if its carcase is improperly dealt with. To limit the dangers arising in the first of these ways every animal suspected of anthrax (and when an outbreak occurs many cases may be diagnosed by the thermometer) ought to be confined in a place that admits of being thoroughly disinfected. The dung, litter, etc. in the place should be afterwards destroyed by burning, and the floors and walls ought to be treated with some reliable germicide. If the disinfection is practised at once, and the temperature does not exceed 70° F., it may safely be considered that any disinfectant capable of destroying spore-free bacilli will suffice, such as a 2 or 3 per cent. solution of carbolic acid, creolin, or chloride of lime.

On the other hand if the temperature has been 80° F. and a day or more has elapsed since the contamination occurred, rendering it probable that spores may have been formed, stronger agents such as ½ per cent. of mercuric chloride ought to be employed. It is also worth while remembering that the disinfectant power of any of these solutions is intensified by using them hot. Every case of sudden unexpected death in cattle, sheep, or horses ought to be suspected of anthrax until the contrary is ascertained. The carcase should be buried six feet deep with plenty of fresh lime above and underneath.

Finally, when an outbreak of anthrax occurs among animals at grass, it is advisable to keep animals off the field in which the death occurred as long as possible.

Discussion.

The Chairman said they had just been treated to a highly scientific and practical paper and he hoped they would discuss it freely.

Mr. Penhale (Barnstaple) said he differed from Professor McFadyean in thinking that he had been dogmatic or had laid down a too hard-and-fast rule. They acknowledge that they had had the pleasure of listening to the greatest authority in England on this disease. Although anthrax was, as a rule, so fatal, they had had some crumbs of comfort. It had come as a surprise to him (the speaker) that, after all, the life of the bacillus might not be so very long. If there was, say, exposure to the sunlight, and if putrefaction set in, say only in a moderate degree of cold, it appeared that the germs would die. If proper precautions were taken in regard to disinfection and burial the land might be again rendered free. He could endorse what the Professor had said, at least regarding cattle generally, that infection was no doubt through the digestive organs. He was not sure that for many years they had not been a little bit dogmatic. When scientific men could not see a reasonable explanation of a thing they were apt to be a little bit dogmatic. But that might lead one into error. He was now alluding to abrasions of the mucous membranes. He remembered the time when it was thought impossible for a horse, whose mucous membranes were sound, to become glandered. It was thought that there must be a wound along the digestive track somewhere. Experiments since that time would go a great way, he believed, to disprove this, although the Professor seemed to say that it was rather rare to find animals with mucous membranes that were called sound where no abrasions had taken place. In an extensive outbreak of anthrax in this neighbourhood where a hundred animals died off in three or four days on one farm, it seemed singular that, although all were infected in the digestive system, a large number of the animals should have been found suffering from an abrasion of the intestinal track. These germs had the power of penetrating through moist and soft membranes.

Mr. Bloye said he wished on behalf of the Association to give Professor McFadyean a cordial welcome and to tell him how pleased they were to get him there, so far in the remote west, to give such an admirable lecture and demonstration. To discuss such a lecture would be akin to painting the lily. (hear, hear, and laughter). They would not allow for a moment that he had assumed a dogmatic manner; but they did allow that he could afford to assume a dogmatic manner should he care to do so. (Hear, hear.) There had been no man whom he (the speaker) had watched who had been so absolutely sure of his facts before making them public as Professor McFadyean, whose statements could always be relied on. (Applause). They might safely do so in regard to to his statement and work in connection with anthrax. Much of the experimental work which he had mentioned that day would be of the greatest use to all of them. (Hear, hear.) They valued the statistics which he had given them in regard to temperatures, and the results of his experiments in inoculations. He could endorse what the Professor had said in regard to the variability of the size of the spleen in animals which died of anthrax; in the case of a cow he had seen the spleen five times its normal size, and in the case of an ox he had seen the spleen scarcely enlarged at all.

Mr. Golledge spoke of the risk which ordinary persons ran of misleading themselves by relying on microscopical examination in the diagnosis of anthrax.

Mr. Heath said that all of them who had seen cases of anthrax should give their testimony to bear out, or otherwise, the practical conclusions to which the Professor had arrived. A more instructive paper had never been read before the Association. He (the speaker) could endorse, from practical experience, the Professor's statement that many animals recovered from anthrax. He had seen pigs recover after a serious illness with their throats enormously swollen. He saw a case just before Christmas where a farmer had a sheep die in a field, and the carcase was given to pigs and a dog. Three of the pigs were found within a day or two dead, and several of the others had swollen throats but recovered. The sheep dog was ill, but recovered. He had seen the case of two sheep dogs which had been near a diseased bullock and one had died and the other recovered. If an animal died suddenly, and they did not know what it died of, it should be buried with disinfectants. That was the best advice they, as practitioners, could give to their clients.

Mr. Harvey said one good thing would be done if local authorities in the West of England could be induced to recognise the importance of the burial of animals found dead, or having died without the cause being known. Authorities in Cornwall did not think one had done right unless one cut up the animals, and thus done more injury than if they had been left in the skin. (Hear, hear) If agriculturists could be induced to take to heart the point in the lecture, *i.e.*, that it was highly necessary to bury all animals found in that way, a great good would be done. (Hear, hear).

Mr. Elder said that part of the lecture which dealt with the life history of the bacillus must be of great practical use to them all. A thorough knowledge of that would enable them to act properly when called to a case of this description, and give directions which would be a benefit to their clients, and reflect credit on themselves. He was very pleased to hear the Professor say that so many recoveries took place. (Hear, hear).

Mr. Dunstan related particulars of a few cases of the disease which had recently come under his notice, and said it was now, he thought, generally recognised that the disease did not necessarily need for its attack that there should be an abrasion either of the skin or mucous membrane. He wished to lay emphasis on the great necessity of having the blood as fresh as possible for making a diagnosis of the disease by means of the microscope, as the fresher the blood the less risk is there of mistaking the malignant œdema bacillus and other putrefactive

bacilli for those of anthrax. One good method of distinguishing the bacilli was to stain by Gramm's method. The anthrax bacilli will stain by this method, whilst the malignant œdema bacillus will not stain by it.

The CHAIRMAN said he could bear out the Professor's remark that many animals, especially pigs, died from asphyxia, and from that they could no doubt trace the infection through ingestion. He was glad to hear the Professor say that swelling in the throat was almost a diagnostic sign.

Professor MCFADYEAN, in reply, said he felt gratified that the views to which he had given expression had been so generally corroborated by the experienced members of that society. The discussion had hardly elicited a single point regarding which there appeared to be any difference of opinion. He was sorry if he conveyed the impression that it was his own belief that cattle, or any other animal must have abrasion or lesion of the alimentary canal to ensure infection. He did not express himself decidedly. The experiments of Monsieur Pasteur had results which served to indicate that wound of the mouth would favour infection, but his (the speaker's) own opinion was that as sound an animal as could be found in the world could be infected by ingestion. He was well aware there was, at one time, a controversy of the same nature with regard to glanders, but he could never understand what justified any human being in maintaining that a horse must have an abrasion of the mucous membrane to ensure glanders infection. Who could tell, looking from the outside of a live animal that it had an intact mucous membrane in the respiratory or the alimentary passages? He would allow any individual who maintained that an abrasion was necessary to select a live animal free from abrasion, and he would infect it. He was quite sure that abrasion was not necessary. It was true that if they selected a number of animals, whether sheep, cattle, or pigs, and fed them with virulent anthrax material, and if they embraced in the experiments a considerable number of animals, some of them would not show any symptoms. That had been known for a long time. Pasteur had shown that spores could actually pass through the alimentary canal and be recovered again in the fœces. There was nothing marvellous about infection with an intact epithelium. The leucocytes, while of great service in dealing with organisms at the moment of penetration—although they were a little over rash in running away so fast, (laughter)—and were, undoubtedly, highly protective, were, nevertheless, sometimes instrumental in infection. He should like to protest against the claim of those who called themselves scientific men when they refused to admit a fact because they did not know the explanation of it. We must not deny facts because we cannot explain them. (Hear, hear.) We must go on working and try to find an explanation. (Applause.) He thanked Mr. Bloye for the kind things he said about him, but he thought he went a great deal too far. He would advise a little more caution in that respect, because he claimed no infallibility in regard to his interpretation of facts; but he did like to be right about his facts. Of course they might all be wrong about their opinions on them. He was glad to find Mr. Heath's experience corroborated what he said about pigs; and he had been interested in what Mr. Dunstan had said of the case in which a man had been in the habit of buying up carcases on which to feed fowls. He had had something in his notes about the susceptibility of fowls. It was generally held by bacteriologists that fowls were, in any circumstances, immune against anthrax. He had been told that fowls had died after eating an anthrax carcase, but he had never been able to verify such a case. It was known that fowls could be experimentally infected. Pasteur showed that they could, but the experiments went to bear out the opinion that fowls enjoyed a high degree of immunity. It was an interesting case, the one mentioned by Mr. Dunstan, where a cow, which had been taken to a farm to a bull where there had been a case of anthrax, had died from anthrax the next day. He (the Professor) would venture to say that the cow did not contract anthrax at the farm to which she was taken, because he did not believe the period of incubation in the ox was ever so short as 24 hours. If an animal was inoculated with large quantities of virus, in no case would the animal die within 24 hours. He did not think there was a case on record of death occurring from anthrax in 24 hours after infection. In the guinea-pig, a vastly more susceptible animal, death, as a rule, occurred at a longer interval than 24 hours; it was usually between 24 and 36 hours. In the ox he thought what one might call the period of incubation—the period that elapsed between infection and death—ran to days, three or four, and in some cases considerably longer. He did not deny that the horse might contract the disease by inoculation. He thought it was a rare method of infection. Curiously enough he had one case of a horse inoculated in Cornwall. In that case the horse was inoculated through a man taking a skin of an animal and carrying it on the horse's withers. That horse died of contracted anthrax. He was quite satisfied that black quarter was not communicable to the pig or the dog. In conclusion he said it had given him great pleasure to listen to the discussion, and to make the acquaintance of the members of the Society. (App.)

The CHAIRMAN proposed that the thanks of the meeting be given to the Professor for his instructive lecture, and remarked that his researches had been a great boon to the profession and to the nation at large. (Applause). The Chairman also proposed that the Professor be elected an hon. associate of that Association.

Mr. PENHALE (Barnstaple) seconded the motion which was carried unanimously.

Professor MCFADYEAN, in response, said it had been a real pleasure to him to attend. He always enjoyed going to meetings of the local veterinary societies throughout the county. He did not very often go outside London, where his duties were pretty onerous and hard; but he hoped before long it might be possible to come back to this Association. (Applause).

The President then entertained the company, which was the largest ever present at any of the Association's meetings, to a sumptuous dinner, after which the usual toasts were proposed and duly honoured.

JOHN DUNSTAN, *Hon. sec.*

EXTRACTS AND NOTES.

AN INSURANCE CASE—HEAVY PENALTY.

William Pettigrew, veterinary surgeon and farmer, Draffan, Lesmahagow, was charged with having insured against death by accident a black gelding belonging to him with the Horse, Carriage, and General Insurance Company, Ltd., London, and the insurance being then in force (1) on 19th January, 1898, at Draffan, by letters of that date put into the Post Office addressed respectively to Robert Wilson, the secretary; Alex Smart Wilson, district manager at Aberdeen; and David M'Cauldie, agency inspector at Cumnock, all of the above company, pretended that the said gelding had died on that date; (2) on 22nd January, 1898, and at the place above mentioned, filled up, signed, and transmitted by post to the company and to Alex. Smart Wilson, a claim for the loss by death of the gelding in terms of the policy of two-thirds of £50, the market value of the animal, as stated in the claim, and a veterinary surgeon's post-mortem certificate of the death of the gelding and the cause thereof; and (3) on 4th February, 1898, and at

the place mentioned above, transmitted by post to the said Alex. Smart Wilson and the company, a document purporting to be a credit note from Robert Ramsay and Co., Greendyke Street, Glasgow, for 15s. 11d. of money, and pretended that the money was the salvage, or sum realised for the carcase of the gelding so insured, and did thus attempt to induce the company and the District Manager to pay to him two-thirds of the sum of £50, in respect of the death of the gelding and the insurance, and to defraud the company, while the truth was that the gelding was still alive.

Mr. Stodart, solicitor, Hamilton, appeared for accused, and stated that his client pleaded guilty to all the charges except that part of the indictment included in the following words "and a veterinary surgeon's post-mortem certificate of the death of the said gelding and the cause thereof."

The Fiscal accepted the plea, and Mr. Stodart proceeded to speak on behalf of the accused. He said that on the first date his client was out driving with the agent of the company, and the horse burst a blood vessel in the head. They changed horses and continued their journey in the full expectation that the animal would not recover. It was on this night that the letters were written. His client had no idea of committing fraud when he lodged the claim. He however, had unfortunately, after he found out that the horse was alive been led on by a desire to recover part of the money paid to the Insurance Company, and had sent the other letters. His information was that his client had written before the matter had been placed in the hands of the Procurator Fiscal, and abandoned the claim of his own free will. He hoped that this Lordship would give his client the benefit of the First Offenders' Act, or at the most inflict a very light penalty. His client was now sorry for what he had done, and were he imprisoned, his reputation would be at stake. He had hitherto been very highly respected in the locality in which he lived, and Mr. Stodart quoted several letters testifying to the esteem in which accused was held.

The Sheriff asked if this was a case that could be dealt with under the First Offenders' Act.

Mr. Stodart thought it was in cases such as this that the Act was meant to be enforced. Were his client imprisoned his whole reputation would be gone and he would be placed among criminals such as were to be found in these places. Whereas if he were let off with a penalty it would serve as a lesson to him in future.

Mr. Tenant stated that his information was that accused knew perfectly well before he bought the animal that it was suffering from this disease. He, therefore, could not plead ignorance. He also knew that the animal was not likely to die.

The Sheriff, in passing sentence, said this was a case very different indeed from the ordinary run of cases that were dealt with at this court, and on the face of it it was a very serious matter indeed. The charge against acused was that he, having insured a horse with this Insurance Company in London, professed that the horse had died, and put forward a claim for two-thirds of £50, being the sum which, in the event of the horse having died, he would have been entitled to recover from the Company. Not only did he put forward the claim—he supported it; and to make it appear genuine, he remitted a sum of money which he professed to be the salvage of the carcase. That meant a deliberate proceeding, especially when conducted in correspondence, which was not consistent with his having fallen into this crime through ignorance or want of thought. It was, on the face of it, a deliberate attempt to commit fraud. A most serious thing it was that this crime was admitted to be committed against an insurance company, because, he need hardly tell him, as he was a man who represented this very insurance company, that the conduct of insurance was largely founded upon confidence, and it was a very serious thing both for insurance and insured that such occurrences should cause insurance companies to lose faith in the statements made to them by the parties insured by them. At the same time, it weighed with him that by the letter of the 23rd February accused appeared to have realised the seriousness of the attempt he was making, and that he withdrew the claim he had put forward. The withdrawal of the claim did not, of course, affect the criminal aspect of the putting forward of the claim, but he took it to mean that accused, having lent himself to this fraud, he had by that time thought better of it, and he thought the letter was an evidence that he regretted he had made the attempt to commit the fraud. He also took into consideration the fact that had been stated that he was a man who had occupied a position which had apparently led those among whom he mixed to entertain a good opinion as to his character. But, of course, in the question of fraud the aspect was two-sided, because it was just the man who had an appearance of respectability on his face who had an opportunity of committing a fraud such as this; and, therefore, the question of character had not the same weight as in a question such as applied to some other offence, for a man might have in the passion of the moment been hurried into it. However, considering that accused withdrew the claim, he thought that the ends of justice would be served if he did give him the option of a pecuniary penalty. Of course, any pecuniary penalty for an offence of this sort must be a very substantial one. The amount which accused attempted to defraud the company of was two-thirds of £50, and he did not think he would be doing justice unless he made the pecuniary penalty approach somewhat the amount which he hoped to gain by his fraud. He would give accused the option of a fine, but must make the fine £25, with the alternative of two months' imprisonment.—*The Hamilton Herald.*

THE NINTH INTERNATIONAL CONGRESS OF HYGIENE.

At the close of the inaugural ceremony on Sunday notices were posted and journals distributed among the members in which it was stated that every evening there would be published the announcements for the following day. This looked liked business, and seemed to give satisfaction to all, but when the morning newspapers were published on Monday, and no announcement appeared therein as to the hour of meeting, we made our way al ng with others to the Palacio de Bibliotecas, and took our chance. Here, although members were gathering in considerable numbers, no one knew when the various Sections were likely to begin work. We were told they might begin any time in the forenoon. Spanish unpunctuality seemed rather to try the patience and temper of the English members of the Congress, and gave occasion for many remarks expressive of dissatisfaction with the arrangements made and the way they were being carried out.

The Work of the Sections.

It is impossible to enumerate the titles of the papers that were read. In many of the Sections abstracts only were read. English and foreign delegates alike complained of the want of order. In the various Sections the papers for the first day dealt with such subjects as avian and human diphtheria, antitoxic serums, the preparation of toxins and antititoxins, and the means for differentiating the cholera bacillus. In the Section of Preventive Medicine the questions of vaccination and revaccination were discussed: and in that of Demography the geography and climatology of tuberculosis. There was no lack of papers and no want of interest in

those that were read taking them as a whole. The health of towns; the filtration of water supplied to the public; the sanitation of cemeteries; alcoholism, as seen in various parts of Spain—for example, Madrid and Seville—and also as affecting Roumania, the causes which contribute to the mortality of infants and the means of remedying them: such are the titles of several of the papers, and they show by the wide range they cover the opportunities offered for interesting debates.

The Tuberculosis Antitoxin.

A communication of particular importance was that of Dr. Behring on the toxin of tuberculosis. He began by saying that the vaccine of tuberculosis had not yet been found. The discovery of the tubercle bacillus was indeed epoch-making, but it was still uncertain what would come of it. For his part he had hoped to find an active antitoxin with a corresponding toxin; but so far he had been unsuccessful. He would even be sceptical as regards such a result had he not found that birds were much more suitable for this kind of research than mammals. With sodium and other reagents mucin as well as other chemical substances could be extracted from tubercle bacilli. These bodies had nothing to do with the toxin of tuberculosis. If the bacilli were subjected to a temperature of 105° C., freed from fat, and treated with glycerinated water, insoluble albuminous bodies were obtained which had a virulence twenty times greater. The toxin of tuberculosis was therefore not identical with the primitive substance. The chemical constitution of the toxin was not modified by the operations to which it was subjected. Behring stated that the substance which he had isolated was eighty or even a hundred times more virulent than Koch's tuberculin. He had also obtained an antitoxin by passing the virus through the horse, in the same way as was done in the case of diphtheria and tetanus. There was however, this difference, that in a phthisical patient more than 0.5 c.cm. to 1 c.cm. could be injected without producing injurious effects, general as well as local. Behring lays it down as a principle that the harmlessness of an antitoxin is an indispensable condition of its practical application; but there are many other difficulties which must be overcome before an antitoxin of tuberculosis can come into use in the treatment of human beings. In bovine animals it is already possible by its means to cure a declared tuberculosis; but even in them one gathers that the remedy at present is somewhat dangerous to life. This, however, it is pointed out by Behring, is important only from the economic point of view. If of 100 animals treated with the serum 90 are cured and 10 are killed, the treatment should still be adopted. Experiments on an extensive scale are to be made in the Berlin Veterinary School in order to determine the value of the treatment.

A Uniform Standard of Therapeutic Serums.

Behring took occasion to insist once more on the necessity of the degree of virulence of the toxin being accurately known. For this purpose the manufacture of serums must be under the control of a competent person. He suggested that an International system of control should be organised. The accurate regulation of the potency of anti-diphtheria serum formed the subject of a communication by Dr. Janowsky, of Warsaw, who urged that a uniform standard should be adopted by all countries. He proposed that the Congress should pass a resolution to the effect that a normal type of serum should be fixed in order that the therapeutic effects reported by observers in different countries might be fairly comparable. The proposal was warmly endorsed by Loeffler, who suggested that it would be well to enlarge the scope of the resolution so as to include all therapeutic serums. Chantemesse said he did not see the necessity of fixing an international standard of serum. Spronck, of Utrecht, proposed that a serum of minimum intensity—for example, 10,000 units—should be established for universal use. Calmette, Nocard, and Chantemesse expressed the opinion that a competent committee should be appointed to prepare proposals to be submitted at the next Congress. It was decided that a committee of experts should be appointed to consider whether there would be any advantage in having a uniform international standard of strength in the case of antitoxic serums.

Pleuro-Pneumonia.

As at Budapest, so also at Madrid, it is the bacteriological section which has attracted the most attention. This is not surprising, as it is in the domain of bacteriology that new discoveries were most likely to be recorded. In this respect the Congress has not been disappointed. For instance, Dr Nocard, of the Veterinary School of Alfort (the great French centre for the production of serum) and delegate of the French Academy of Medicine, read a very important paper on the microbe of pleuro-pneumonia. He had succeeded in cultivating this microbe in envelopes of collodion.

Cerebral Tetanus.

Dr. Borrel read a paper describing the experiments made by Dr. Roux and himself at the Pasteur Institute with regard to the tetanic disease obtained by the direct inoculation of tetanic toxin in the brain substance of susceptible animals. Under the name of cerebral tetanus a special malady is obtained which is clearly defined by a set of symptoms including excitement, epileptiform convulsions, strange or manifold desires, and other symptoms which vary according to the portion of the brain in which the toxin has been introduced. This tetanic malady is absolutely different to the ordinary tetanus but is none the less specific. Dr. Borrel and Dr. Roux then studied cerebral tetanus among immunised animals. They discovered that an animal rendered immune against injections under the skin was not immune against injections into the substance of the brain. From this they conclude that subcutaneous injections of antitoxin do not effect the nerve cells and do not protect them. The same occurs when for therapeutic purposes serum is injected into an animal which has commenced to manifest the symptoms of tetanus, the nerve substance being already attacked by the toxin. The serum does not reach the nerve cells and therefore the toxin can continue its deadly effects undisturbed. This explains the many failures to treat tetanus by antitoxin. Dr. Roux and Dr. Borrel then tried to treat the disease by conveying the antitoxin direct to the brain substance. There were thus able to cure rabbits, guinea-pigs, etc., even when the disease had prevailed for some hours, and this at a time when very large subcutaneous injections had proved of no use whatsoever. On the other hand, when injected into the brain matter very small quantities of serum sufficed. These researches on cerebral tetanus demonstrated that with animals immunised passively or actively the nerve cells are not immunised. An immunised animal which resists a subcutaneous inoculation of the toxin will die if the smallest quantity of this toxin is introduced into the brain matter. Immunity is not therefore due to some new property acquired by the nerve cells as they remain unaffected unless directly attacked. The same may be noticed in cases of natural immunity. Thus, for instance, Dr. Roux and Dr. Borrel have shown that the rat is naturally immune from diphtheria, and that subcutaneous injections of diphtheritic poison will not produce this disease. On the other hand, if the smallest quantity of this toxin is introduced into the brain of this animal it will die from diphtheritic paralysis. All these facts open out a new field of research in respect to the question of immunity.

Anti-Snake Poison.

Dr. A. Calmette, who is now professor of the Pasteur Institute of Lille, but whose investigations in China and elsewhere are well known, made some interesting and conclusive experiments with regard to the venom of reptiles. He brought some rabbits in cages and the most active snake poisons known. These consisted of a mixture of the venom of the bothrops, the naja and the cobra capello. Taking one of the rabbits he injected five times the fatal dose into a vein of the ear. In 20 minutes this rabbit was dead. In the meanwhile he injected two cubic centimetres of serum into two of the other rabbits ; and then after a little while injected the same dose of venom into these two rabbits which was fatal to the first rabbit. The serum, however, proved a perfect protective ; the two rabbits were not even ill. He then took the two rabbits and injected five cubic centimetres of serum into one of the rabbits. He then gave to both the rabbits ten times the fatal dose of venom. The rabbit which had not been rendered immune by the serum died in three minutes, the other rabbit, though it had received ten times the fatal dose of venom was not affected. Professor Calmette explained that with regard to the poison of reptiles it was possible to calculate with great precision the results. According to the weight of the animal or person it could be reckoned how much poison would destroy and how much serum would save life. The production of this serum was easy, and large quantities had been sent to India. It was stable in quality and could be kept any length of time. Nor did the horses employed for its production appear to be any the worse for the process, though they were bled once a fortnight—a fact which perhaps explained why our forefathers were able to withstand the frequent bleeding to which they were subjected by the medical practitioners of their day.

Wall Diseases Treated by Inoculation.

Dr. E. Vallin, of the French Academy of Medicine, read a very interesting and original paper on the Presence of Saltpetre in the Walls of Inhabited Houses. This he described as a disease of the walls due to the presence of micro-organisms. As the walls could not suffer without causing serious inconvenience to the persons whom they were destined to shelter it was the duty of sanitary reformers to seek to cure the walls and thus save the inhabitants of the houses. The disease was caused by the penetration into the body of the walls of the bacilli of nitrification, and consequently the houses became cold, damp, and unwholesome. This state was likely to occur in damp localities and in the presence of nitrogenous organic matter. From the sanitary point of view this disease of the walls could and should be prevented or cured as we prevent or cure virulent diseases among men and animals. Consequently, Dr. Vallin proceeded to speak of the walls of a house just as if they were human beings and went systematically through the various symptoms of their diseases. Dealing first with the prophylaxis of wall diseases he pointed out that the primary step to be taken was to thoroughly drain the ground round the walls and isolate them from the surrounding earth, if possible by a trench and by the use of cement, asphalt, or cold tar. Thus the access of water bearing nitrifying bacteria that are aerobic would be prevented. It was also very necessary to mix the mortar used with antiseptic solutions such as dissolved sulphate of copper, etc. Where these precautions had not been taken and the disease had broken out then the treatment indicated was as follows : first to scrape off and wash away all superficial traces of saltpetre, etc. ; then the walls should be inoculated with active cultures of the anti-nitrifying bacilli which impoverish farm manure by decomposing the nitrates and by throwing off in the atmosphere a great part of the nitrogen which they contain ; these walls should then be covered over with impermeable paint so as to retard the process of nitrification of the aerobic germs and, on the other hand, to stimulate the growth of the anaerobic and anti-nitrifying germs which remove the oxygen from the nitrates and from ammonia when they cannot supply themselves with oxygen from the atmosphere. This ingenious theory was highly appreciated, and formed the subject of many conversations among members of the Congress. The idea of applying the principles of inoculation to the preservation of material used in building open out a vast field for possible progress in the domain of sanitary engineering and architecture.

Reception by the Queen Regent.

In the afternoon of Wednesday, April 13th, the Queen Regent and King Alfonso XIII held a reception in the Royal Palace. The palace of Madrid is one of the finest in Europe. There was a large muster of members of the Congress and their wives. Considering the very anxious and worrying time the Queen of Spain has recently had it was a pleasure to see her pass down the path made for her between the members looking well and with a smile for all. Here and there she exchanged a kindly word with some of her own subjects, mostly army officers in uniform, whom she recognised. In a room adjoining the throne room she entered into conversation with members of other nationalities, but of presentations to Her Majesty such as take place at our own Court there were none.

British Want of Organisation.

I have alluded to the great absence of organisation of the English members as compared with the German and French. So dissatisfied were we in this matter that a meeting of the English members was held one evening at the Hotel de la Paix, under the presidency of Dr. Donald MacAlister. Expressions of dissatisfaction were universal. It is quite apparent that before future Congresses some steps will have to be taken by the British Secretary to bring intending members into unison. London was not represented as it ought to have been. Paris has been chosen as the place of next meeting of the Congress in 1900—the year of the Great Exhibition and with our knowledge of the French genius for order and discipline, it is to be hoped that things in general will be better conducted so far as the technical part of the Congress is concerned than they have been in Madrid. The number of Sections, for example, should be less, and there should be more general meetings at which the united voice of the Congress could express itself upon large questions bearing upon international hygiene.

On the whole, notwithstanding the want of organization which is almost the rule at these gatherings, the Madrid Congress was a great success considering the disturbed state of the political atmosphere. The courtesy and attention shown by the Spaniards to the guests were simply admirable.—*Brit. Med. Journal.*

CORRESPONDENCE

"AT SINGAPORE."

We refer to the following letter on our front page and shall be careful not again to quote *The Siam Weekly Mail.*

Government Veterinary Surgeon's Office, Singapore.
March 31st, 1898.

Sir,

I have the honour to inform you that I have noticed in your issue of the 19th February, an extract from the *Siam Weekly Mail* which contains rather derogatory remarks regarding myself.

I did not deem it advisable to reply to the same so

long as it only appeared in the *Siam Weekly Mail*, but since it has appeared in your valuable and widely read journal I consider I must, in justice to myself, take notice of it, and beg to inform you that I am not subordinate in any way to the medical officer in Singapore. Rinderpest was introduced into Malacca from Muar, which is a portion of the independent State of Johore, under the Government of H. H. The Sultan of Johore. The affected district, which was close to the boundaries of that State and lies about 20 to 24 miles from Malacca town, was isolated, under my instructions, by means of barricades across all the roads; preventing all through traffic, which is by means of bullock carts. The disease did not spread from the enclosed area and only about 30 buffaloes died from the disease.

With regard to the remainder of the paragraph, I think my annual official reports for 1896 and 1897, copies of which I enclose, quite sufficient to refute the statements therein made.—I have the honour to be, sir, your most obedient servant,

P. Scott Falshaw, M.R.C.V S.,
Government Veterinary Surgeon, Singapore.

Communications, Books, and Papers received:—Capt. J. B. Savage, Messrs. P. Scott Falshaw, W. A. N. Robertson, H. Thompson, E. W. Hoare, Jno. Dunstan, R. J. Dawson, W. F. Barrett, F. Waddington, J. Smith, E. White Wallis, J. C. James. *The Agricultural Journal* (Cape), *The Siam Weekly Mail*, *The Evening Chronicle* (Newcastle), *The Irish Times*, *The Illustrated Edinburgh News*.

Veterinary Societies—Addresses.

Alterations for this list must be duly notified by the Secretaries

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Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

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Meetings, 1st Thursday in March, June, Sept., & Dec.

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Meetings, Second Friday in Feb., & May.
Second Tuesday in August, November

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Meetings, First Friday, Mar., June, Sept. and Dec.

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Meetings First Thursday in March, and Autumn.

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Brunswick Terrace, Leeds
Hon. Sec; Mr. A. McCarmick, M.R.C.V.S., Kirkstall-rd, Leeds
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